REMARKS

This Application has been carefully reviewed in light of the Office Action mailed September 13, 2010. All pending Claims 1-15 were rejected in the Office Action. Claims 1, 4, 6, 9, 11, and 14 are herein amended. Applicants respectfully request reconsideration and allowance of all pending claims.

Claim Objections

Claims 1, 6, and 11 were objected due to the recitation of certain phrases.

First, the Examiner argues:

> The term 'signal-value-range multiplex output type sensor' is neither clear nor concise and not very descriptive of the concept applicant intends to capture. From examiner's understanding, it is not the sensor type which is being detected, but whether there is a) one sensor or b) multiple sensors being multiplexed. The 'signal-value-range' part of the phrase cannot be deciphered by the examiner. The examiner suggest, perhaps "multiplexed sensor output" and "non- multiplexed sensor output" or the like.

Applicants respectfully submit that the Examiner is misunderstanding or misreading Applicants' disclosure. The term "signal-value-range multiplex output type sensor" does in fact accurately describe the concept Applicants intend to capture. As explicitly stated multiple times in Applicants' specification, it ***is*** the sensor type which is being detected (and not "whether there is a) one sensor or b) multiple sensors being multiplexed" as suggested by the Examiner. For example, Applicants' specification explains:

- "The invention relates to a method for ***recognizing a sensor type***." (Published Application US 2008/0215296, paragraph 0003).
- "The object of the invention is to provide a method by means of which a ***sensor type can be recognized simply***." (Id., paragraph 0005).
- "The invention is characterized by a method having the following steps for ***recognizing a sensor type***." (Id., paragraph 0006).
- "The respective ***sensor type can in this way be reliably recognized*** without the need for additional hardware therefor." (Id., paragraph 0007).
- "In a further advantageous embodiment of the invention the sensor having the signal-value-range multiplex output for the measuring signal will be recognized when the first and second condition have been met a predefined

number of times, preferably, moreover, within a predefinable period of time. The sensor not having a signal-value-range multiplex output for the measuring signal will otherwise be recognized. It can in this way be ensured that ***the sensor type will be recognized*** extremely reliably." (Id., paragraph 0009).

- "FIG. 2 is a flowchart of a program for recognizing a sensor type." (Id., paragraph 0014).
- "FIG. 3 is a further flowchart of a program that assigns measurement values as a function of a recognized sensor type." (Id., paragraph 0015).
- "A sensor 1 can be a sensor 2 not having a signal-value-range multiplex output or ***a sensor 4 having a signal-value-range multiplex output***. Shown by way of example in FIG. 4a is a time curve of a measuring signal V_SENS for ***the sensor 4 having a signal-value-range multiplex output***. FIG. 4b shows the time curve of the measuring signal V_SENS of the sensor 2 not having a signal-value-range multiplex output, with in each case the abscissa being the time t and the ordinate a voltage U." (Id., paragraph 0017).
- "A program for recognizing a sensor type (FIG. 2) is started at a step S1 at which, where applicable, variables are initialized." (Id., paragraph 0021).

In light of these numerous explanations that the type of sensor is being detected, as well as Figure 1, which illustrates "a sensor 2 not having a signal-value-range multiplex output or *a sensor 4 having a signal-value-range multiplex output*," Applicants do not understand the Examiner's position that the sensor type is not being detected.

Further, Applicants disagree that the "signal-value-range" part of the phrase "signal-value-range multiplex output type sensor" is somehow confusing, in view of the specification. As described in the specification, a sensor 4 outputs -- in a multiplexed manner -- the measurements of two parameters having different signal-value ranges. For example, the specification provides the example of a sensor 4 that is both a fuel-temperature sensor and a fuel-quality sensor, which outputs the two types of measurements -- the two types of measurements having different signal-value ranges -- in a multiplexed manner. (Published Application US 2008/0215296, paragraph 0018).

However, although Applicants believe the claims are clear in view of the specification, Applicants have amended the independent claims to explicitly define "signal-value-range multiplex output type sensor" in the claims. For example, amended Claim 1 recites "determining whether or not the sensor is a signal-value-range multiplex output type

sensor, **wherein a signal-value-range multiplex output type sensor comprises a type of sensor that measures at least two different parameters having different ranges of signal values and outputs the measurements of the at least two different parameters in a multiplexed manner** ..."

Accordingly, based on the above, Applicants respectfully request that this objection be withdrawn.

Second, the Examiner alleged that the term "gradient" is "not entirely accurate" because, for the Examiner's understanding, the system looks for a switch from a high to a low value or vice versa as a step function, and thus the slope is nearly infinite. Applicants respectfully disagree. First, Applicants' specification does not teach a "nearly infinite" slope. In the case of a sensor having a multiplexed output, e.g., as shown in Figure 4A, the slope during a transition depends in part on the sampling period DT (i.e., the time between measurements) used in the calculation. For example, as shown in Figure 4A, the slope between two consecutive measurements during a transition would be large (or small) but not "nearly infinite" as the Examiner suggests. Second, even if Applicants' did teach a "nearly infinite" slope, there is nothing legally improper with claiming the calculation of a "nearly infinite" slope. Third, Applicants disagree with the Examiner's assertion that the calculation of the "gradient" is "more accurately a simple arithmetic change." As seen in Figure 4A, measurements may be taken during the transition or change over. Thus, the measurement -- at least in some embodiments -- is not simply a binary "on/off" measurement. For at least these reasons, the term "gradient" is accurate and proper.

Third, the Examiner alleged that "the claims are not as clear and concise as may be possible." Applicants respectfully submit that there is no legal requirement for claims to be as clear and concise as possible (in fact, Applicants would submit that almost no claims, if any, are as clear and concise *as possible*). Rather, M.P.E.P. 1824 merely requires that "[c]laims shall be clear and concise." However, in order to advance prosecution in a timely manner, Applicants have amended Claim 1 to avoid any possible repetition of limitations.

Rejections under 35 U.S.C. § 101

Claims 1-10 were rejected by the Examiner under 35 U.S.C. §101, because the claimed invention is allegedly directed to non-statutory subject matter. Although Applicants do not necessarily agree, Applicants have amended Claim 1 similar to the Examiner's suggestion. Specifically, amended Claim 1 recites "A method for recognizing a sensor type, the method performed by a program of computer instructions embodied in non-transitory computer-readable media and comprising the following steps …"

Similarly, independent Claim 6 has been amended to recite "A method for determining whether or not a sensor is a signal-value-range multiplex output type sensor …, the method performed by a program of computer instructions embodied in non-transitory computer-readable media and comprising …"

Thus, Applicants request that the rejections under 35 U.S.C. §101 be withdrawn.

Rejections under 35 U.S.C. § 112

Claims 4-5, 9-10, and 14-15 were rejected by the Examiner under 35 U.S.C. §112, second paragraph, as being indefinite and failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants have amended Claims 4, 9, and 14 to address the Examiner's specific objections, and thus respectfully request that these rejections be withdrawn.

Rejections under 35 U.S.C. §103

Claims 1-3, 6-8, and 11-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Gee* (U.S. 5,397,924) and *Rigsby* (U.S. 5,739,592).

In order to establish a prima facie case of obviousness, the references cited by the Examiner must disclose all claimed limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Even if each limitation is disclosed in a combination of references, however, a claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). Rather, the Examiner must identify an

apparent reason to combine the known elements in the fashion claimed. *Id.* "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Finally, the reason must be free of the distortion caused by hindsight bias and may not rely on ex post reasoning. *KSR*, 127 S.Ct. at 1742. In addition, evidence that such a combination was uniquely challenging or difficult tends to show that a claim was not obvious. *Leapfrog Enterprises, Inc. v. Fisher-Price, Inc. and Mattel, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007), citing *KSR*, 127 S.Ct. at 1741.

Applicants respectfully submit that *Gee* and *Rigsby*, whether alone or in combination, do not teach the inventions recited in Applicants claims. First, Applicants submit that a claimed invention cannot be obvious where the Examiner explicitly admits that nearly all of the limitations are **not taught by the cited references**. For example, Claim 1 essentially recites checking a first condition, checking a second condition, and then determining a sensor type based on whether the two conditions are met, and the Examiner explicitly admits that both the first condition check and the second condition check are not taught by the cited references (specifically, the Examiner admits that both steps are "not specified by *Gee*, and the Examiner does not allege that *Rigsby* teaches these steps). Instead, the Examiner argues that each of these two critical features of the claimed invention would be obvious based on some allegedly similar features of *Gee*. However, the alleged teachings of *Gee* cannot be equated to Applicants' invention. *Gee* allegedly teaches a digital system that looks for logical changes between 0 and 1. In contrast, despite the Examiner's apparent understanding of Applicants' invention, Applicants' system does not switch between two preset values (e.g., 0 and 1). As shown in Applicants' FIG. 4A, each of the two multiplexed outputs of the sensor can change over time, which makes sense if it is understood that each of the multiplexed outputs represents measurements of a different parameter (e.g., temperature) that changes over time. Further, as discussed above, as seen in Figure 4A, measurements may be taken during the transition or change over between the two multiplexed outputs. Thus, the system can analyze (i.e., calculate gradients based on) intermediate values, in contrast to the purely binary system of *Gee*.

Further, as discussed above, Applicants' claims are directed to **determining a sensor type**. Neither *Gee* nor *Rigsby* teaches **determining a sensor type**, and the Examiner does not allege that *Gee* or *Rigsby* does teach these key feature. More specifically, with respect to amended Claim 1, neither *Gee* nor *Rigsby* teaches "determining whether or not [a] sensor is a signal-value-range multiplex output type sensor, wherein a signal-value-range multiplex output type sensor comprises a type of sensor that measures at least two different parameters having different ranges of signal values and outputs the measurements of the at least two different parameters in a multiplexed manner." Neither *Gee* nor *Rigsby* teaches anything remotely similar to a sensor that measures different parameters having different ranges of signal values and outputs the measurements in a multiplexed manner.

Thus, for at least the various reasons set forth above, Applicants respectfully submit that amended independent Claims 1, 6, and 11 are clearly distinguished from *Gee* and *Rigsby*. Accordingly, Applicants request reconsideration and allowance of independent Claims 1, 6, and 11, as well as all claims that depend therefrom.

CONCLUSION

Applicants have made an earnest effort to place this case in condition for allowance in light of the remarks set forth above. Applicants respectfully request reconsideration of the pending claims.

Applicants believe there are no fees due at this time. However, the Commissioner is hereby authorized to charge any fees necessary or credit any overpayment to Deposit Account No. 50-4871 of King & Spalding L.L.P.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Applicants' attorney at 512.457.2030.

Respectfully submitted,
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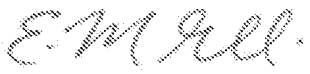

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